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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/750,580

12/29/2003

Robert E. Higashi

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8588

128

7590

12/12/2005

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EXAMINER

NGUYEN, THINH T

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,580

Applicant(s)

HIGASHI ET AL.

Examiner

Thinh T. Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/3/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

1. Applicant's election of claims 1-9 for prosecution without traverse in the communication with the Office on 11/23/2005 is acknowledged.

Specification

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(a/b/e) that form the basis for the rejections under this section made in this office action.

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects

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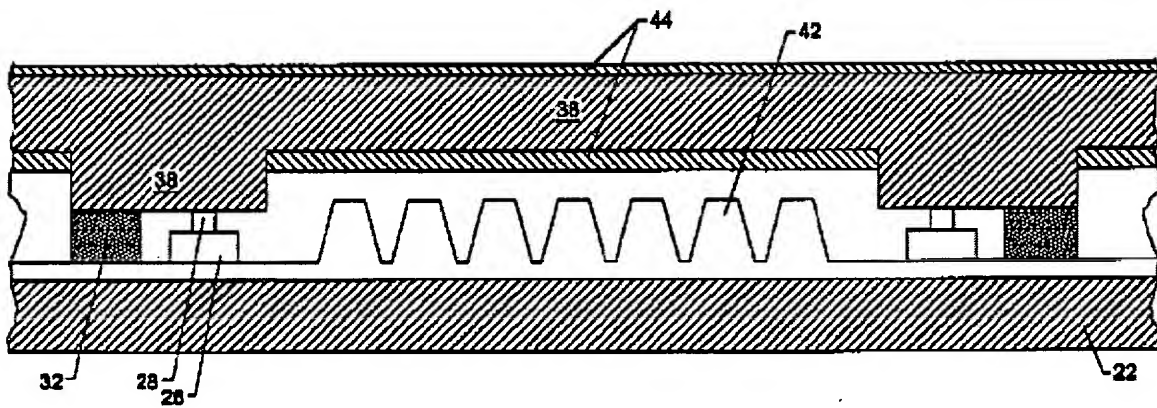
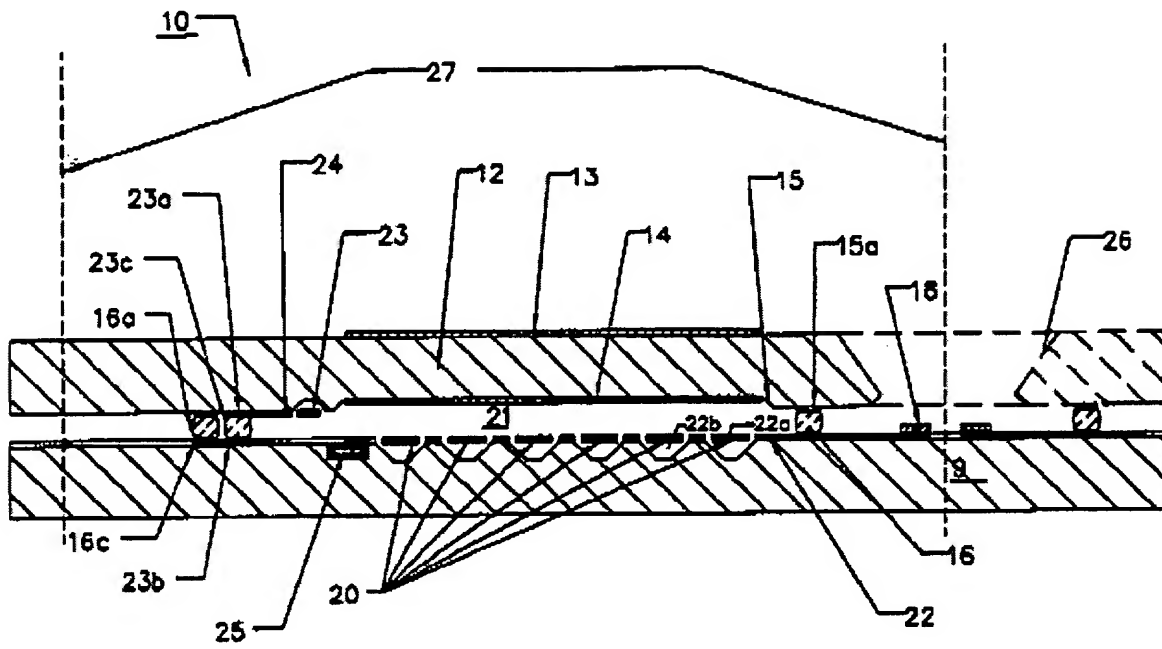
for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Higashi et al. (U.S. Patent 5,895,233) provided in Applicant's IDS or under 35 U.S.C. 102(e) as being anticipated by Hays et al. (US patent 6,252,229).

REGARDING CLAIM 1

Higashi 233 discloses (in the abstract, in fig 3) an integrated package comprising: a first wafer (fig 3 reference 12) having a first surface; a second wafer (fig 3 reference 9) having a first surface bonded at a first perimeter to the first surface of the first wafer; and a recess formed in the first surface of the first wafer in a second perimeter situated within the first perimeter.

Similarly, Hays et al. (in the abstract, in fig 3, first wafer 38 second wafer 22) disclose the same invention



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5. Claim 2 rejected under 35 U.S.C. 102(e) as being anticipated by Cole (US patent (6,627,892) provided in Applicant IDS. The applied reference has a common Assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

REGARDING CLAIM 2

Cole discloses (in the abstract, in fig 3) an integrated package comprising: a first wafer (fig 3 reference 137) having a first surface; a second wafer (fig 3 reference 141) having a first surface bonded at a first perimeter to the first surface of the first wafer; and a recess formed in the first surface of the first wafer in a second perimeter situated within the first perimeter the assembly further comprising a first bump pattern (fig 3 reference 320) in the first surface of the first wafer within the second perimeter.

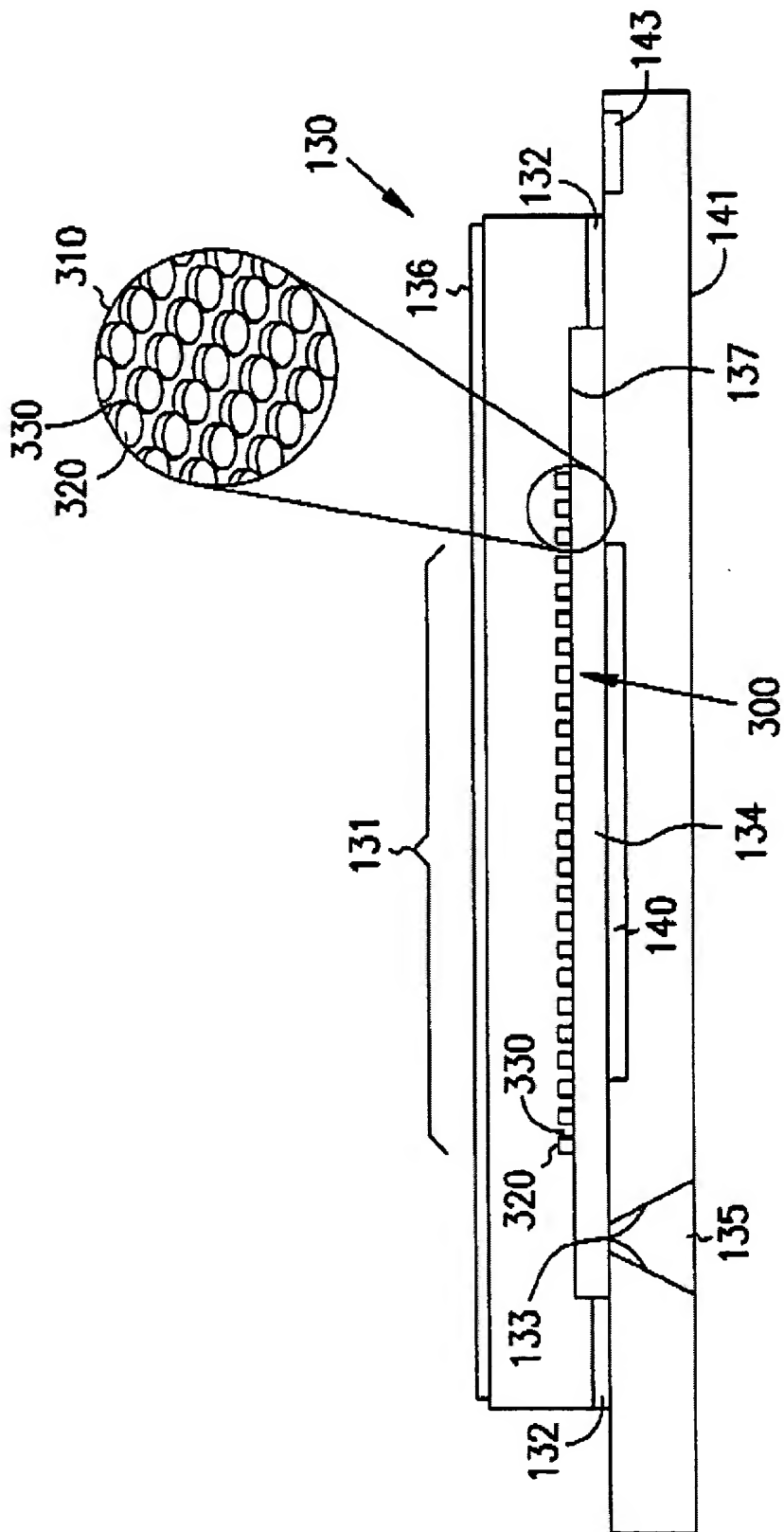


FIG. 3

Claim Rejections - 35 USC § 103

6. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashi et al (U.S. patent 5,895,233) in view of Banish et al. (U.S. patent application publication US 2002/0135869).

REGARDING CLAIM 3

Higashi 233 discloses (in the abstract, in fig 3) all the invention including an antireflective patterns (fig 3 references 13 and 14) on both surface of the first substrate. Missing in the disclosure by Higashi 233 is the teachings in which a bump pattern is used as antireflective pattern. Banish, however, in paragraph [0049],[0062],in fig 2 in the abstract , in claim 6 discloses bump pattern that can be use as antireflective pattern.

It would have been obvious to one of ordinary skill in the art the time the invention was made to complement the teachings by Higashi 233 with the teachings by Banish and come up with the invention of claim 3.

The rationale is as the following:

A person skilled in the art at the time the invention was made would have been motivated to improve the Higashi 233 device using the teachings by Banish to make it get superior transmission values and cheap manufacturing cost as suggested by Banish et al. (in the abstract, in paragraph [0044])

REGARDING CLAIM 4

Higashi 233 discloses (in the abstract, in fig 3) wherein a seal is provide between the first and second wafer.

The rationale why claim 4 is obvious over Higashi 233 in view of Banish have been discussed in the rejection of claim 3.

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashi et al (U.S. patent 5,895,233) in view of Banish et al. (U.S. patent application publication US 2002/0135869) and in further view by Jerominek et al. (US patent 6,686,653).

REGARDING CLAIM 5-6

As discussed in the rejection of claim 3 the combined teachings by Higashi 233 and Banish disclose all the invention including a layer of malleable material (Higashi 233 uses solder to seal and solder is malleable) . Missing in the combined teachings by Higashi 233 and Banish is the limitation that the seal have a spacer and bondable material . Jerominek, however, (fig 4 layer 51,52, the abstract) teaches the construction of a package with a seal using spacer and bondable material.

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It would have been obvious to one of ordinary skill in the art the time the invention was made to complement the teachings by Higashi 233 with the teachings by Banish and Jerominek and come up with the invention of claim 5-6.

The rationale is as the following:

A person skilled in the art at the time the invention was made would have been motivated to further improve the device invented by Higashi 233 and Banish to be less fragile and even more cost effective as suggested by Jerominek in column 1 lines 65-67.

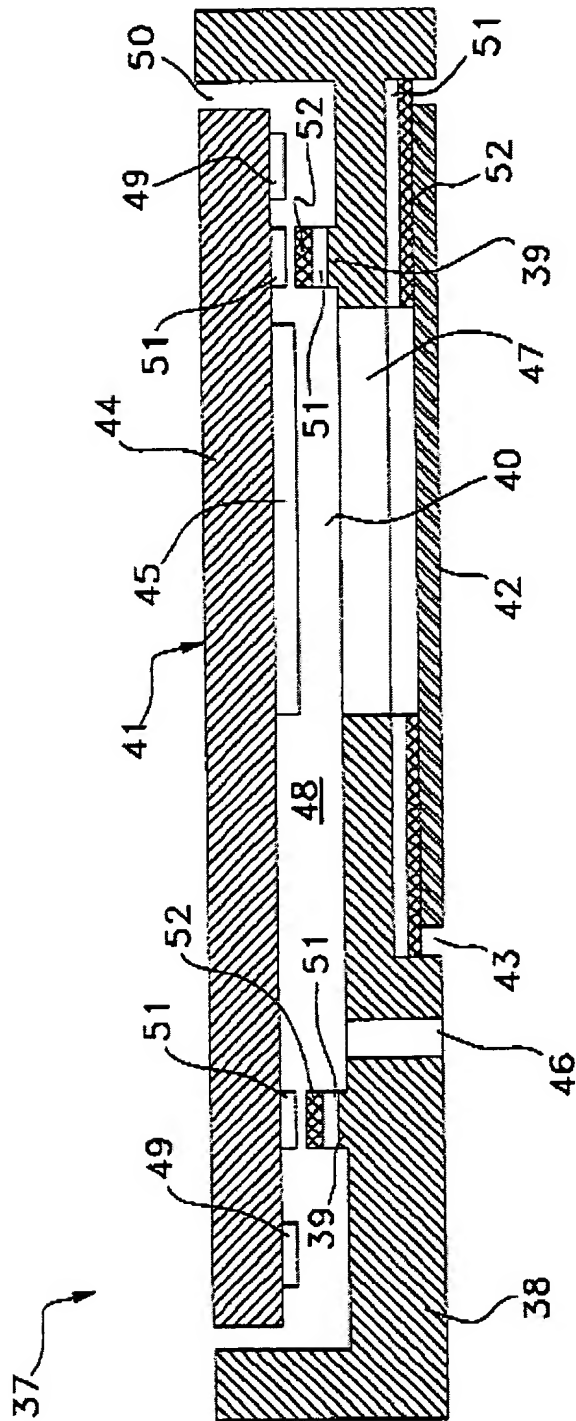


FIG. 4

ALLOWABLE SUBJECT MATTER

9. Claims 7-9 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claims 7-9 are considered allowable since the prior fails to teach a integrated package that has the additional technical features as recited in claims 7.

10. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

11. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

CONCLUSION

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:30am-6: 30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [PAIR] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thinh T. Nguyen

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